

SPECIFICATION (Ex. Am.)

APPLICATION FOR PATENT

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TITLE: ENTERPRISE SERVER FOR SCADA SYSTEM

SPECIFICATION

FIELD OF THE INVENTION

5 [0001] The present application is a continuation-in-part application, which claims priority to co-pending patent application Serial No. 09/826,578 filed in the U.S. Patent and Trademark Office on April 5, 2001, *still pending.*

10 [0002] The present invention relates to an enterprise server for an integrated automation system that has utility in the refining, petrochemical and chemical processing industries as well as the oil and gas production industry, metal manufacturing industry, maritime drilling businesses and environmental monitoring. In addition, the present invention relates to a system for use with electrical production and distribution, waste treatment and distribution, wastewater treatment and gas pipelines and distribution.

15 [0003] The invention specifically relates to a server for Supervisory Control and Data Acquisition (SCADA) systems. In addition, the invention relates to method for communication using a SCADA system including use of Intelligent Electronic Devices, which are also called remote terminal units in this application or "(RTU)".

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ββ [00022] Generally, in this system, the RTU measure physical properties and can be remotely configured by the AES 28. Additionally, the RTU's can run simulations, and provide that data to the enterprise server 12 or ¹⁶~~14~~ based on instruction via the AES.

5 ββ [00023] For a simulation, a, SCADA system 10 requires communication with RTU 20 and the enterprise server 16 and/or ¹²~~14~~, or even others.

[00024] The AES provides by RTU 20 with simulation instructions so the RTU can run tests without the need for an operator or expensive test equipment to inject a new configuration of an RTU into system 10. Moreover, RTU 20 can continue to monitor and/or control process 12, while the simulation is running.

10 [00025] Referring to FIG. 2, an exemplary RTU 20 is shown in further detail. As shown, the essential parts of RTU 20 comprise a microprocessor 30, an analog-to-digital converter (ADC) 32, a digital signal processor 34, a communication interface 36, such as at least one bi-directional port or one or more directional input ports or interfaces, or output ports or interfaces 38, a user interface 40 and a memory area 42. Memory area 42 comprises both Read-Only Memory (ROM) and Random Access Memory (RAM) and comprises both a program memory 44 and a communication port register memory 46, which includes a command register.

20 [00026] As with many standard RTUs such as the microprocessor-based relay, RTU 20 measures aspects of a physical process 22 such as currents and voltages and converts the measured values into a digital equivalent via ADC 32 and digital signal processor 34. Microprocessor 30 moves the digital representation of the measured values into